

## **AMENDMENTS TO THE CLAIMS:**

The listing of claims will replace all prior versions, and listings of claims in the application:

### **LISTING OF THE CLAIMS**

1. (Currently Amended) A printing workflow system disposed in a network environment for coordinating production of document processing jobs; said printing workflow system comprising:

a plurality of autonomous cells, wherein each autonomous cell is comprised of a plurality of devices and resources with at least some devices and resources performing distinct operations from one another, and that are configured to be capable of entirely completing at least one type of document processing job within said autonomous cell such that there is no dependence upon other autonomous cells for completing the job;

a workflow mapping module that determines workflow for a selected one of said document processing jobs; by identifying operational steps and the sequence of these operational steps necessary to complete said document processing job;

a job decomposition module for splitting the selected document processing job into sub-jobs that are accomplished by given ones of the autonomous cells, wherein splitting occurs based on the difference between the operational steps of the jobs and further splitting occurs on a job containing the same operational steps to facilitate faster completion by using multiple devices;

a cell assignment module for assigning said sub-jobs to said given ones of the autonomous cells capable of accomplishing entire said sub-job; and

a product cell controller at a selected one of the given autonomous cells for receiving at least one of said autonomous sub-job and for further splitting said job into lots for processing among said plurality of devices in said selected autonomous cell.

wherein a device within the plurality of devices and resources uses a kanban based pull control policy to request work by sending authorization to the upstream product cell controller to supply said device with the necessary input.

2. (Canceled)

3. (Previously Presented) The printing workflow system of claim 1 further comprising a storage device for holding information regarding capacities and capabilities of said cells and for storing information regarding workflow of each document processing job said workflow comprising a sequence of operations needed to be performed to accomplish the selected document processing job.

4-5. (Canceled)

6. (Previously Presented) The printing workflow system of claim 3 wherein said product cell controller splits said sub-jobs into optimal lot sizes determined by analyzing said workflow of said selected document processing job, wherein said sub-job is split into smaller lots for optimal utilization of said cell devices such that as one said cell device processes one said lot another said cell device processes another said lot simultaneously.

7. (Previously Presented) The printing workflow system of claim 6 wherein said product cell controller assigns a number of "kanbans" to said lots as workflow control elements.

8. (Previously Presented) The printing workflow system of claim 7 wherein said product cell controllers send authorization in the form of "kanbans" to upstream devices calling for said upstream devices to supply said cell devices with next said lot and wherein said assigned "kanbans" are released as said lots are processed and said assigned "kanbans" become available for future authorization of future lots.

9. (Currently Amended) A method used in a print workflow system disposed in a network environment for coordinating production of document processing jobs, said method comprising:

partitioning document processing devices and resources into a plurality of autonomous cells capable of entirely completing at least one type of document processing job within said autonomous cell such that there is no dependence upon other cells for completing the job;

determining workflow for a selected one of said document processing jobs; by identifying operational steps and the sequence of these operational steps necessary to complete said document processing job;

splitting selected document processing job into sub-jobs that are able to be entirely accomplished by given ones of the autonomous cells; wherein splitting occurs based on the difference between the operational steps of the jobs and further splitting occurs on a job containing identical operational steps to facilitate faster completion by using multiple devices;

assigning said sub-jobs to said given ones of the autonomous cells capable of accomplishing entire said sub-job; and

receiving at a selected one of the given cells at least one sub-job and further splitting said sub-job into lots for processing among devices and resources in said selected autonomous cell; wherein a device within the plurality of devices and resources use a kanban based pull control policy to request work by sending authorization to the upstream product cell controller to supply said device with the necessary input by;

- a) splitting said sub-job into optimal lot sizes determined by analyzing said workflow of said selected document processing job, whereby said sub-job is split into smaller lots for optimal utilization of said cell devices;
- b) step assigning a number of "kanbans" to said lots as workflow control elements;
- c) sending authorization in the form of "kanbans" from cell devices to upstream devices calling for said upstream devices to supply said selected cell devices with next said lot and wherein said assigned "kanbans" are released as said lots are processed and said assigned "kanbans" become available for future authorization of

future lots.

10. (Canceled)

11. (Previously Presented) The method recited in claim 9 further comprising holding information regarding capacities and capabilities of said cells and for storing information regarding workflow of each document processing job, said workflow being comprised of a sequence of operations needed to be performed to accomplish the selected document processing job.

12-16. (Canceled)

17. (original) A method for assigning sub-jobs to available cells in a printing workflow system for coordinating document processing jobs, wherein each of the available cells is comprised of at least one device for printing a product-type, the method comprising:

identifying maximum capacity of each of the available cells to print the product-type;

identifying current loading of each of the available cells to print product-type;

determining based on the maximum capacity and current loading of each of the available cells a current capacity of each of the available cells to print the product-type; and

assigning at least one of the available cells for printing the product-type based on the current capacity of each of the available cells.

18. (original) The method of claim 17 wherein the print workflow system stores the maximum capacities of each of the available cells in the print workflow system.

19. (original) The method of claim 17 further comprising a pull-type control policy for determining whether a cell can be assigned new document processing jobs.

20. (original) The method of claim 17 wherein the print workflow system updates the current loading of each available cells.

21. (original) The method of claim 17 wherein the print workflow system updates the maximum capacity.

22-24. (Canceled)

25. (Previously Presented) The printing workflow system of claim 3 wherein the workflow mapping module uses said information to determine a workflow for a selected document processing job and the job decomposition module uses said workflow to split said document processing job into autonomous sub-jobs.

26. (Previously Presented) The printing workflow system of claim 25 wherein the cell assignment module uses said workflow to assign said autonomous sub-jobs to given ones of said autonomous cells capable of accomplishing entire said sub-job.

27-28. (Canceled)

29. (Previously Presented) The method recited in claim 11 wherein the step of determining uses said information to determine said workflow for a selected document processing job and the job decomposition module uses said workflow to split said document processing job into autonomous sub-jobs.

30. (Previously Presented) The method recited in claim 29 wherein the cell step of assigning uses said workflow to assign said autonomous sub-jobs to given ones of said autonomous cells capable of accomplishing entire said sub-job.

31. (Canceled)